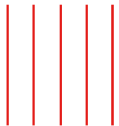


**4modIA**

**UF Science Humaines et Sociales  
A4MASH11**

**English – Course Outline – Semester 7**

**2023-2024**



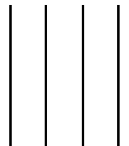


# UF Sciences Humaines et Sociales

## Sem 7 INSA

### 4 ECTS

Course	Number of hours	Co-efficient
English	27.5 h	0.4
Law	15 h	0.4
PPI	3.25 h	0.2





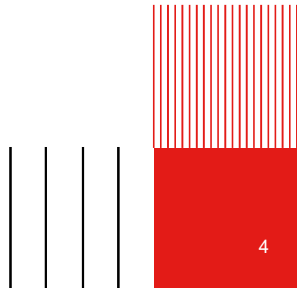
# Semester 7: Scientific English

<https://moodle.insa-toulouse.fr/course/view.php?id=1428>



# Objectives

- Develop an awareness of scientific publications and give oral presentations on AI topics
- Define the parts of an abstract and write one according to standard practice
- Design and present a scientific poster relating to your work in your company
- Write text and present in the scientific style
- Develop a global overview of ethical issues relating AI





# When will I take the Linguaskill Business Reading & Writing?

**To validate your Engineering diploma  
= score of 164 (TOEIC 815 B2+)**

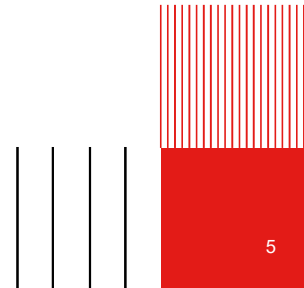
Mock test during term at N7 and INSA

Real test May-June 2024

Test centre = Cambridge Centre (Blagnac) or at home

Resources on Moodle page

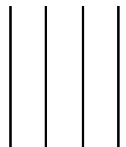
Global Exam Licence for all students



# Class by class schedule

Thursday afternoon 13:30-16:15 room 215 CSH

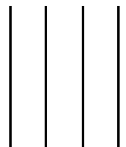
Week	Date	Class content
36	07/09/23	<b>Course Introduction; Publications + Scientific abstracts</b>
37	14/09/23	<b>Scientific abstracts</b>
38	<u>22/09/23</u>	<b>Scientific English (concise) + Journal club</b>
39	28/09/23	<b>Scientific English (clear) + Abstract deliverable</b>
45	09/11/23	<b>Linguaskill Mock Test (80 mins) + correction</b>
46	16/11/23	<b>Ethics</b>
47	23/11/23	<b>Scientific Posters + citations</b>
48	30/11/23	<b>Scientific Posters and presentations</b>
3	18/01/24	<b>Scientific Posters and presentations</b>
4	25/01/24	<b>Practice Presentations + pronunciation</b>
5	01/02/24	<b>Final poster presentations</b>





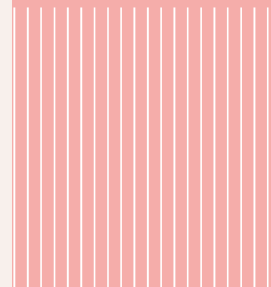
# Evaluation and Deadlines

<b>Abstract</b> 200-250 words	Pair work	25%	01/10/2023 23:59
<b>Scientific Poster</b>	Individual	25%	29/01/2024 23:59
<b>Poster presentation</b> 5 minutes	Individual	30%	01/02/2024
<b>Participation</b> Class participation 7 h on Global Exam	Individual	20%	






# Introduction to Scientific English










**SOUTHERN UNIVERSITY**  
Arkadelphia & Richland Campuses

**The Great Moonbuggy Race**  
**Team Moon Racerz**  
Southern University and A&M College • MeEII 451 • Senior Design II • Department of Mechanical Engineering




**BACKGROUND**

- ◆ The Great Moonbuggy Race has occurred annually for 18 years at the U.S. Space and Rocket Center in Huntsville, Alabama
- ◆ The initial moon buggy concept was to allow longer missions on the moon's surface
- ◆ Vehicle must fold into a 4'x4'x4' volume box and be carried 20ft by the two drivers (one male, one female)
- ◆ Many of the moonbuggy metal components are made of Aluminum 6061 because it is strong and light weight.
- ◆ Ultimate Tensile Strength= 310.2 MPa
- ◆ Yield Strength= 275.8 MPa
- ◆ Density = 0.0975 lb/in<sup>3</sup>
- ◆ Finite Element Analysis has been performed on some components to provide visuals of the mechanical stresses the vehicle encounters.


**ABSTRACT**

◆ Moon Racerz were assigned the task of developing a moonbuggy in accordance with the rules for NASA's Great Moonbuggy Race by going through the traditional design process. The moonbuggy is broken down into various components including the frame, steering, transmission, brakes, and suspension.



The Final Moonbuggy Design

**MOON RACERZ**




Members from left to right: Phillip Rucker, Anthony Adams, Jarrell O'Neil, Jamarickson, Roberto Roberts, Jordan Allen, Taylor Ventres, & others, Cameron

**TEST TRACK**

◆ Necessary to test the durability of the moonbuggy, and provide the riders with experience.


◆ 25 miles course = 1320 ft

◆ Includes 7 challenging obstacles built from dirt, gravel, sand, and mud



Model Test Track

**FRAME**




FEA Analysis  
Safety Factor, 1/1

Load=1000 lbs  
Omax: 8.63 MPa  
Omax: 161 MPa

N= Yield Strength/Omax  
(275.8MPa)/(161MPa)=1.713


**STEERING**



Turning Radius:  
= 2.88 x 10<sup>3</sup> ft  
= 2 in/deg  
= 1.62 x 2.82  
= 2 in/35°  
= 13.5 ft

◆ This conventional steering arrangement involves the turning of the front wheels of the moon buggy via a hand operated steering device positioned in front of the driver supported by a steering post and steering joints.

**SUSPENSION**



◆ The lower A-arms for the suspension were loaded with a 1000 lbs of force acting in the direction of the shocks. The A-arms do not fail under this load. The most critical region shown is at the shock mounts.

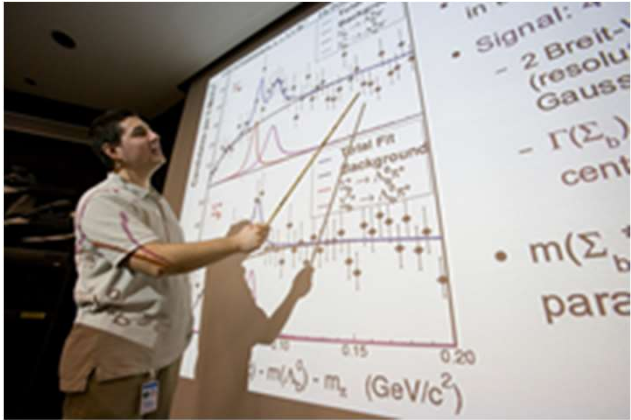
◆ Maximum spring compression force:  
 $F = k \cdot \Delta L$   
 $k = \text{spring constant}$   
 $\Delta L = \text{change in distance}$   
 $F_s = 400 \text{ lbs} \times 3.5 = 1400 \text{ lbs}$

**TRANSMISSION**

◆ The drive train is the power source of the moon buggy. The drivetrain consist of 7 main parts:

- pedal,
- crank arm,
- sprockets,
- chains,
- hub gear,
- hub gear,
- axis,
- and CV joint.

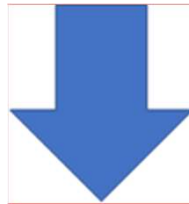
**ACKNOWLEDGEMENTS**  
Special thanks to Dr. Blevins, Dr. Crosby, Dr. Jernu, and Mr. Nettles for providing this opportunity, and for the support throughout this process.



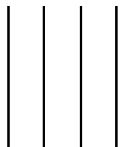


# What are the rules of Scientific English?

Rules come from scientific research and publications



What is the *aim* of scientific publications or presentations?





# Science publications aim to:

# Scientific English must be:

Educate

Clear

Inform

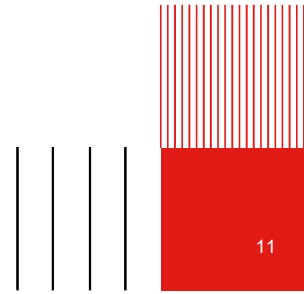
Concise

Record

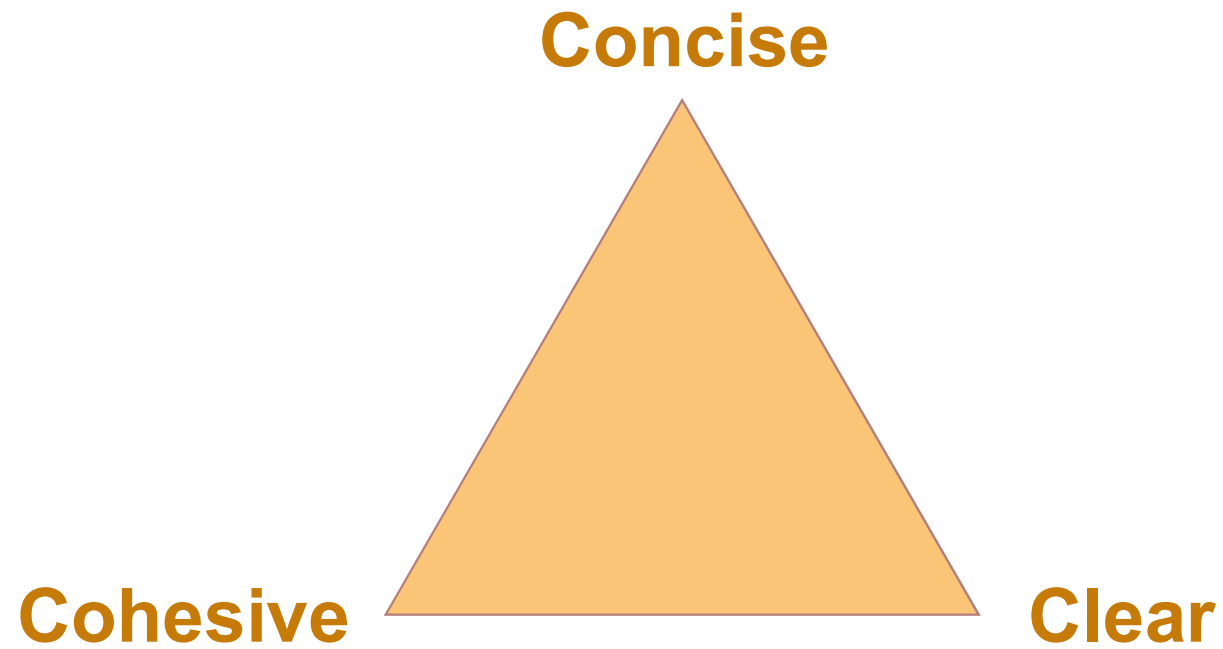
Factual

Persuade

Objective

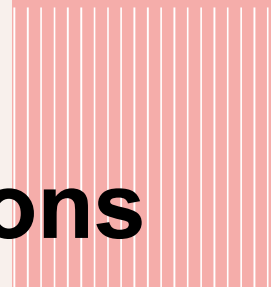


# The 3Cs of Scientific English

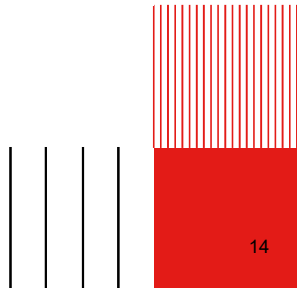
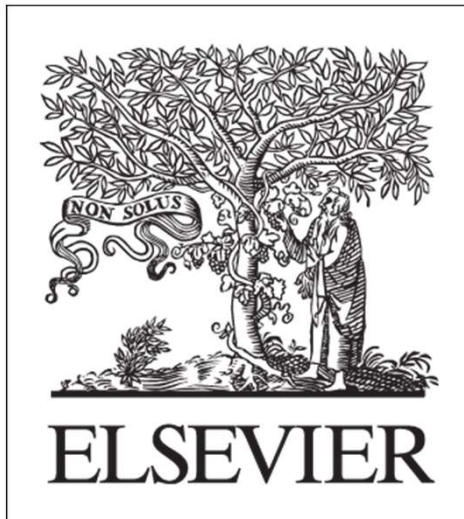




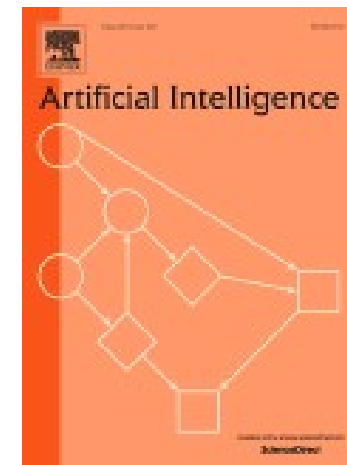
# Introduction to Scientific Publications



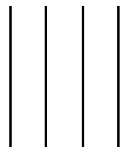
# Scientific Publishers



# Scientific Journals...how to publish an article?



# How to publish an article?



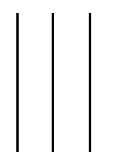
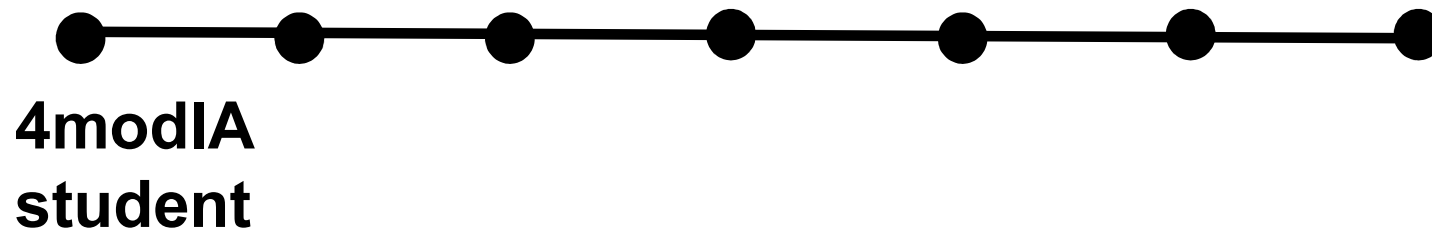




# How to win the Fields Medal Award

You have brilliant mathematical ideas

Brainstorm the steps you need to take to win the Fields Medal





# Contacts

**Becky Coles** coles@insa-toulouse.fr (English coordinator – Apprentices)